HIGH PRECISION ULTRASONIC HARDNESS TESTER

- *VALUE*
- *VERSATILITY*
- *PERFORMANCE*

BUCI-1

DESCRIPTION:

BUCI-1 non-destructive ultrasonic hardness tester, based on the principle of ultrasonic contact impedance method (UCI method), can quickly and without damage to detect the hardness of a variety of metal materials including composite materials and new materials, and has no pressure on the surface of the tested specimen. It has high measurement accuracy and both single-point and multi-point calibration modes. It adopts 3.5-inch LCD color display, intuitive and comprehensive data display, supports mutual conversion among various hardness systems. It is the ideal instrument for detecting varieties of materials.

APPLICATION:

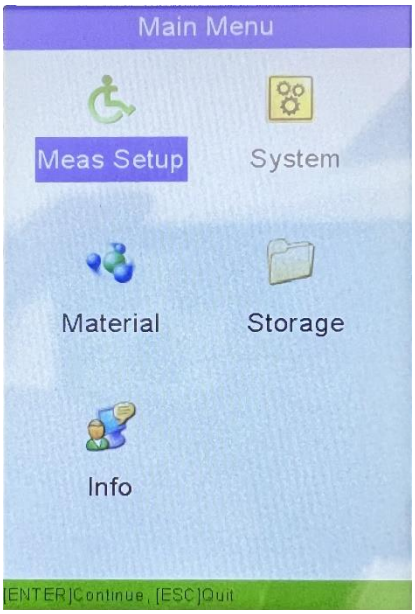
Ultrasonic hardness tester BUCI-1 is widely used to measure hardness of small forgings, cast material, weld inspection, heat affected zone, Ion-nitrided stamping dies and molds, forms, presses, thin-walled parts, bearings, tooth flanks, etc.

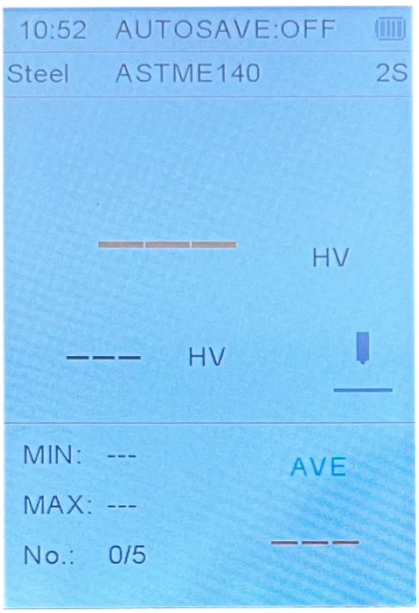


- Hardness test of flange edge and gear root stamping parts, mold, thin plate, face-hardened gear tooth, gear groove and taper part.
- Hardness test of axle and thin-wall pipes and vessels.
- Hardness test of wheels and turbine rotors.
- Hardness test of bit edge.
- Hardness test of welding parts.
- Measure the depth of deep hole with certain aperture, concave and convex mark with large radians, and irregular plane.
- Hardness test of most ferrous and nonferrous metals and their alloys in industrial production.


FEATURES:

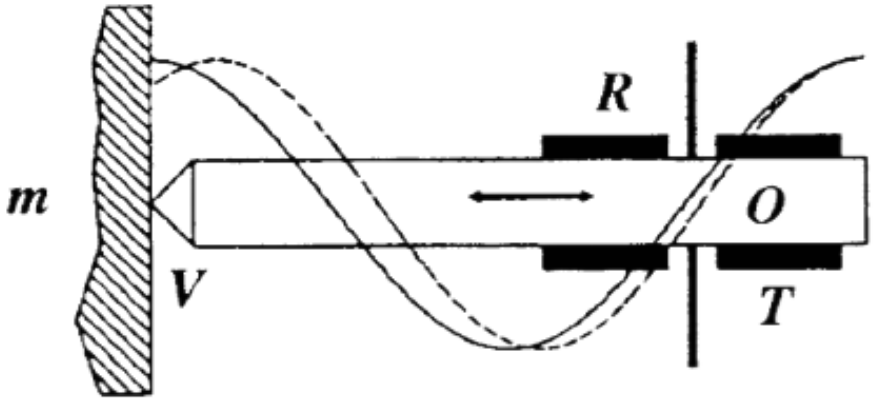
- Based on the principle of ultrasonic resonance, the surface of the tested workpiece is minimally damaged. It is suitable for measuring finished workpieces with high surface technology requirements.
- The measurement speed is fast, and the test results can be output within 1 second; the built-in hardness system conversion function can be converted between the three hardness systems of Brinell (HB), Rockwell (HRC) and Vickers (HV).
- Adopt 3.5-inch LCD color display, the main interface of the screen directly displays the current measurement value, the cumulative measurement times, maximum value, minimum value, average value, automatic storage of measurement data, measurement time, material, hardness conversion table standard, intuitive and comprehensive display.
- With a single-point calibration mode, one-point calibration is used for materials with different elastic moduli to eliminate the influence of elastic modulus and improve measurement accuracy.
- With multi-point calibration mode, it can directly adjust HRC, HRB, HRA, HB, HV, especially suitable for composite materials or new materials without hardness value conversion comparison table, which can be directly calibrated for HRC, HRB, HRA, HB, HV.
- The 10-point factory calibration mode, through the calibration of 10 Vickers hardness blocks with different hardness values, to ensure the factory accuracy of the instrument.
- Optional Bluetooth printer can print measurement data.
- Detecting workpieces of different materials only needs to use test blocks of the same or similar material for adjustment without changing the probe.
- Comply with DIN 50159-1-2008, ASTM-A1038-2005, JB/T 9377-2010, JJG-654-2013, GB\T34205-2017 hardness testing standards.





CALCULATION FORMULA:

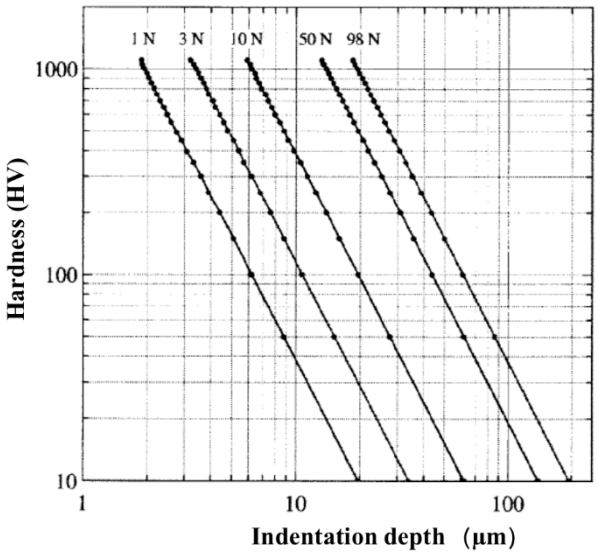
HV=0.102*F/S (F: test load; S: Indentation surface area)



Schematic Description of the UCI Probe

▬▬ Longitudinal Amplitude (no contact)
-------- Longitudinal Amplitude (in contact)
T = Piezo Transducer
R = Receiver
O = Oscillating Rod
V = Indenter, for Example, Vickers Diamond
M = Test Material

MINIMUM THICKNESS:



Thin coatings or surface layers on bulk material must have a minimum thickness of at least ten times of the indentation depth of the indenter used (see Figure 3 for a Vickers indenter) corresponding to the Bueckle's rule:

Smin = 10×h (indentation depth)

MINIMUM WALL THICKNESS:

Distinct reading variations may especially occur with a specimen thickness of less than about 15 mm if the test material is excited to resonance or sympathetic oscillations (for example, thin blocks, tubes, pipes, etc.). Most disturbing are flexural vibrations excited by the vibrating tip. These should be suppressed by suitable means. Sometimes attaching the test piece to a heavy metal block by means of a viscous paste, grease or oil film suffices to quench the flexural waves. Nevertheless, a minimum wall thickness of 2 to 3 mm is recommended.

SURFACE ROUGHNESS:

Surface roughness for different loads:

Test load	98 N	50 N	10 N	3 N
Ra	≤15 µm	≤10 µm	≤5 µm	≤2.5 µm

TECHNICAL SPECIFICATION:

Model No.	BUCI-1
Probe	2kgf manual probe (optional 0.5kgf, 1kgf, 5kgf, 10kgf probe)
Hardness Scale	Main hardness scale: HV Convert scale: HRA, HRB, HRC, HS, HB
Conversion Standard	ASTM E140, ISO18265, GBT1172
Display Brightness	5-99 (20 steps adjustable brightness)
Measuring Range	HV: 50-1599, HRA: 61-85.6, HRB: 41-100, HRC: 20-68, HB: 85-650
Test Error	HR: ± 1.5HR; HB: ± 4%HB; HV: ± 4%HV
Indenter	136° Vickers Diamond Indenter
Measuring Direction	Support 360°
Display	3.5-inch LCD color screen (320*480 color graphic dot matrix)
High Test Speed	1s display test result
Work Environment	Temperature: -20℃~50℃; Humidity: 30%~80%R.H
Power Supply	3.6V, 3000mAh chargeable Li-battery
Continuous Work Time	10 hours (without back light working)
Data Storage	50 sets of measurement data and 10 calibration files
Data Output	Optional purchase blue-tooth printer or through Hyper Terminals connect with computer to do data transfer
Minimum Test Thickness & Weight	2mm, 0.3kg
Packing Size And GW	41*34*15cm, 4.5kg
Standard	ASTM-A1038-05, DIN 50159-1-2008, JB/T 9377-2010

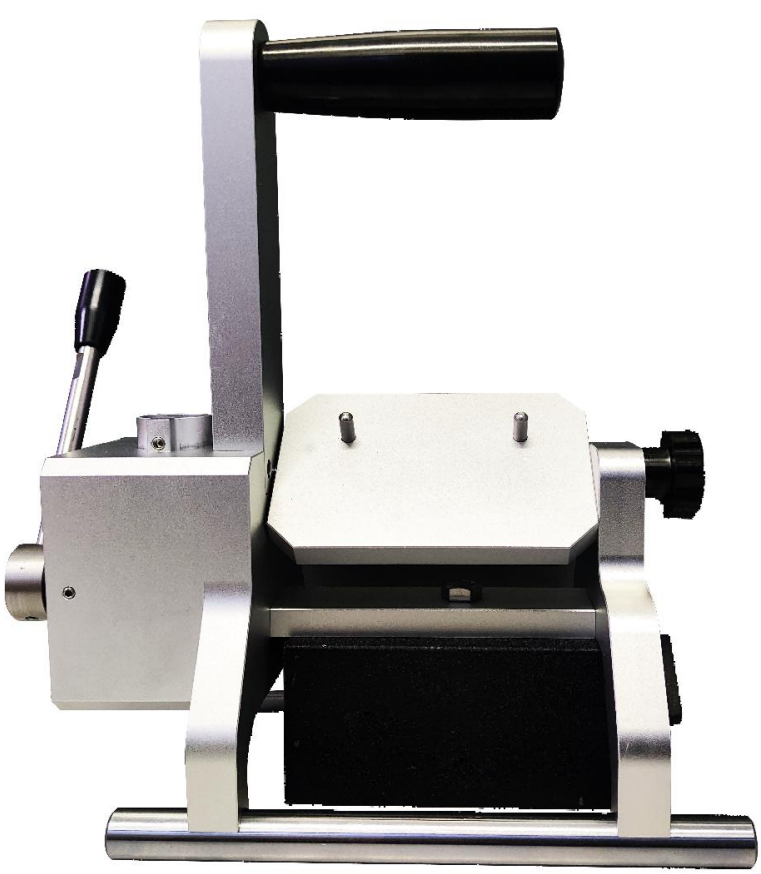
HOST AND ACCESSORIES:

STANDARD ACCESSORIES:

Item Name	Q'ty
Instrument Main Body	1
Manual Probe 2kgf	1
5V AC Power Adapter	1
Probe Cable	1
Standard Hardness Block	1
Instrument Manual	1
Accessories Box	1
Certificate	1

OPTIONAL PURCHASE: TEST STAND

It is applied with ultrasonic hardness tester for the accurate measurement in the laboratory.
Test stand material: Stainless steel



*** Due to continuous product development, Image & specification can be upgrade.**